A Work Project, presented as part of the requirements for the Award of a Master Degree in Economics from the NOVA – School of Business and Economics.

Does Inequality Affect Redistribution? The Political Economy Aspect of the Redistribution Puzzle

Arecida Sophia Hildegard Zabel - 883

A Project carried out on the Master in Economics Program, under the supervision of:

Professor José Tavares

03.01.2018

Abstract

The relationship between income inequality and the level of redistribution seems to be clear only at first glance. Despite the positive relation proposed by theory, empirical results remain ambiguous. The work project "Does Inequality Affect Redistribution? The Political Economy Aspect of the Redistribution Puzzle" seeks to investigate the channels that affect the relationship between inequality and redistribution. Using a TSCS data set on absolute redistribution in 64 countries starting in 1975, country fixed effects regressions yield that evidence for a positive relationship is weak. Furthermore, dependence on political-economy factors seems to be of importance and should be subject to further investigations.

Income Inequality; Redistribution; Political Economy

The Redistribution Puzzle

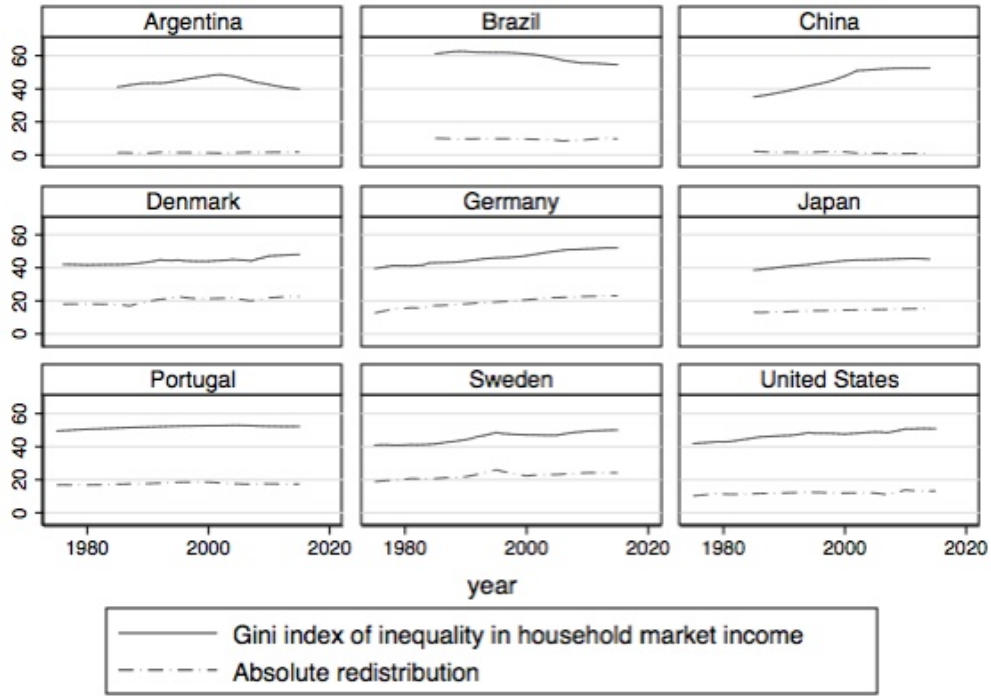
A vast amount of academic literature, especially in the political economy context, builds on the idea formalized by Meltzer and Richard (1981), that more income inequality in a democracy leads to more redistribution[1]. Many recent theories on the influence inequality has on economic growth rely on this argument (e.g. see Tavares and Wacziarg 2001). Although some income inequality is essential for a market economy to work efficiently, and a natural consequence of market forces, too much inequality is thought to be destructive for social cohesion and hinder economic growth. One main argument runs through the distortionary effect redistribution is thought to have on economic decision making. It is thought to decrease incentives for labour and capital input and thus reduce economic growth. In this argument, it is taken as given that more inequality causes more redistribution. In fact, the relationship between these two variables is far from clear. Empirical studies often fail to observe any relationship between inequality and redistribution, or even find that more inequality is related to less redistribution. This has led to

[1] Although to be more precise, the M-R model relates redistribution to the mean-to-median income ratio which is only proxied by inequality.

the establishment of the 'paradox of redistribution' by some scholars (e.g. see Sánchez and Goda 2017).

To obtain a first insight into the relationship, Graph 1 plots the absolute redistribution (which is the difference in the Gini coefficient between market and disposable income) against the market Gini coefficient over a period from 1975 to 2016[2]. Nine representative countries are selected, as plotting all 176 countries for which data on these variables in available is beyond the scope of the thesis. Selection covers emerging and developed markets, illustrating the variety in redistribution in countries within a similar state of development.

Graph 1: Market Gini and Redistribution in Selected Countries



Of particular note is the fact that both the market Gini and redistribution exhibit wide variance in the given group of countries. First, it can be seen that market income inequality has been rising in most countries over the last decades, most notably in China[3]. Although, Argentina and Brazil experienced a decline in income inequality most recently. It is noted, that redistribution

[2] Data for Graph 1 is taken from the Standardized World Income Inequality Database by Solt.

[3] Although only democratic countries should be considered to examine the relationship as voting is a central component of the mechanism suggested by the M-R model, China is included to get a global overview of the relationship.

is much higher with respect to the market Gini in the more developed countries. Moreover, the variables move in parallel in some countries, while patterns demerge in others (most notably the least developed). Overall, the graph suggests the lack of a systematic relation between income inequality and redistribution. This first graphical insight supports the idea that redistribution is not solely dependent on the level of income inequality, but that other factors interfere and should be considered when investigating the relationship. Hence, the question remains whether countries with higher income inequality redistribute more, as suggested by theory. There is reason to believe that political economy factors intervene in the relationship by affecting the extent to which existing preferences over redistribution are formed into policy decisions and thus outcomes.

This thesis seeks to investigate on a cross-national level the political economy channels through which inequality affects redistribution to shed light on the inconclusive empirical results. By employing a panel fixed effects model the following research question is sought to be answered: *Does more income inequality lead to more redistribution?* Hence the thesis adds to the existing literature by extending the analysis to more recent data, which allows to use a direct measure of redistribution. Furthermore, focus is laid on the political economy mechanisms, taking the interaction with these contextual factors into account. The thesis is structured as follows: first, an overview on the current state of research is provided and a theoretical discussion of the political economy channels between inequality and redistribution presented in a reasonably exhaustive way. Then focus is laid in detail on the methodology to assess the relationship and the data used is introduced. The empirical results are then presented and discussed.

The Complex and Dynamic Relationship Between Inequality and Redistribution

Market income inequality has increased in the advanced economies in recent years and reached its highest level in decades, while the pattern is more mixed in emerging markets and developing economies. It is commonly assumed that more unequal societies tend to push for

more redistribution, which is relevant as recent academic discussions are concerned with the effect redistribution has on economic growth. The dependence of this relationship on political economy factors, though, has not been elaborated much in the academic literature. While the basic mechanism works through the median voter hypothesis, other factors on which the relationship might depend have not been explored thoroughly. Attempting to close this gap in academic research, this thesis focuses solely on the macro level, abstracting from individual behaviour, and tries to identify factors influencing the relationship between inequality and redistribution.

Inconclusive Results

In the context of the well-known political economy model of redistribution by Meltzer and Richard (1981)[4], more inequality should lead to more redistribution, which is rather intuitive. In a simplified voter model the median income voter is decisive in the political process. Thus, assuming a typically right-skewed distribution of incomes, the median voter supports redistributive spending up to the point when the benefit is outweighed by costs of distortionary taxes. The more unequal a society, the lower the median voter's income is relative to the mean income. Given progressive taxes, the median voter gains from redistribution, and the more so, the more unequal the income distribution. This model might be too simple though, to describe the more complex reality, as it assumes that the median voter's single-peaked preferences are taken into consideration in a majority voting environment where almost all individuals can participate. The lack of strong empirical evidence of the positive relationship between income inequality and redistribution has motivated the development of alternative theories on the macro and micro level. Several recent studies conclude, contrary to the M-R model argumentation, that market income inequality is not an important determinant of the level of redistribution (see Houle 2017 for an extensive overview of the literature and contrasting results). Besides noting

[4] Henceforth referred to as the M-R model.

the flaws stemming from the simplifying nature of the assumptions made, they argue that institutional factors, the distribution of power resources, the targeting of redistribution instruments as well as the insurance character of social policies are more relevant to explain empirical patterns (see Moene and Wallerstein 2001, Borck 2005, Iversen and Soskice 2006, Kenworthy and McCall 2008). Pecoraro (2017) introduces the time component into the classical micro-model and argues that preferences of individuals not only depend on income but also wealth. He shows that an increase in inequality can be accompanied by either an increase or decrease in redistribution, objecting the systematic relationship proposed by the M-R model. Focus is also laid more frequently on the inclusion of alternative explanatory and intervening factors such as corruption and ethnic fractionalization to explain the mixed results obtained in previous studies (Houle 2017, Sanchez and Goda 2017).

The Political Economy of Inequality and Redistribution

Inconclusive empirical results of the M-R model led to the development of a range of alterative theories. One line of arguments that received less attention in the academic literature so far is the dependence of the relationship on factors concerning the political economy context. As redistribution occurs on a central level, the impact of inequality in redistribution depends on factors that intervene at several stages of the political process. The effect of such contextual factors on redistributive spending has found great interest in the literature on comparative welfare states, but has not been regarded in the context of inequality and redistribution. In the following, the factors thought to intervene in the process and examined empirically in the next section, are organised into two categories, societal and institutional factors.

Societal factors

To begin with, individuals need to be able to express well informed preferences over the level of redistribution for which they need some minimum level of education. One can imagine that citizens that are poorly informed about the prevailing income distribution, have difficulty

assessing their political preferences over redistribution. Additionally, the level of human capital correlates with individual labour productivity, which has implications for the distribution of market income. Higher human capital signals less dependence on government protection and thus lower aggregate demand for redistribution (Dallinger 2010: 339). In addition, after citizens form their preferences, they need to be able to channel them through the political process without distortion. In particular, for their actual preferences to be channelled, political corruption should not disturb the transmission or change the preferences. Across a set of developed and developing countries, Sánchez and Goda (2017) show that higher levels of corruption are related to lower levels of redistribution. Among the mechanisms explaining the finding are vote-buying, a lower trust in institutions, and the costs of corruption and lobbying. Lobbying might result in public resources being allocated in a way that is not truly redistributional, but benefits the lobbying groups. The more profitable sectors and wealthy interest groups often find it easier to gather resources to lobby in their interest[5].

Institutional factors

The second category constitute institutional factors. Most relevant for the assumed relationship is the transfer of preferences into political action. In the political process itself, a main factor is the institutional setting of a country. As noted by Milanovic (2000), one assumption of the M-R model is that (almost) all individuals vote, which implies that the inequality-redistribution relationship is expected to be more pronounced in democracies. At the same time, the civil liberties prevailing in a country are indicative of the possibilities citizens have to express their preferences, not only through elections, but through other forms of political action such as demonstrations. Additionally, the status of political rights and the setting under which political competition occurs also indicate how far the political process itself is following institutional

[5] Esteban and Ray (2006) capture the idea that both economically profitable sectors and those dominated by wealthy interest groups have more of an incentive to lobby and find it easier to do so.

guidelines and how closely electoral promises morph into policy. Likewise, the status of the rule of law in a country captures the degree to which citizens can have confidence in institutions and in the enforcement of the existing law.

Macroeconomic control factors

From the macroeconomic side, the economic situation of a country should play a role in the demand for redistribution, though the expected direction is not clear. On the one hand, people experiencing a prosperous period can have a higher tolerance for more redistribution. On the other hand, they might experience a decreasing need for government protection, or more vulnerability to progressive taxation, and thus reject redistribution (Dallinger 2010). Meanwhile, globalization is thought to be one of the main determinants of rising income inequality and expected to also influence redistribution by introducing global competition for resources and thus constraints for countries.

Empirical Assessment of the Relationship

Definition of the Main Concepts

To begin with, the concepts being analysed need to be defined. Preferences for redistribution are considered to be based on market inequality, as in Milanovic 2000, which is thus the main independent variable of interest. Following the M-R model, the Gini coefficient of market income is the appropriate measure of inequality for this purpose as it is a widely used concept, comparable across time and countries. It is a measure of inequality of income pre-taxes and pre-transfers. As the Gini coefficient is an aggregate statistic, it might conceal underlying differences between countries. Despite this shortcoming, other measures of inequality such as income share ratios, are less frequently available and are not useful as sample size is restricted. The dependent variable redistribution is the reduction (or increase) in the Gini coefficient due to redistributive measures such as taxes and transfers in a specific country, over a year. Absolute redistribution is defined as the difference between the Gini coefficient of market income and of

disposable income (that is post-taxes and transfers). Relative redistribution is defined as the difference between market and disposable Gini as share of market Gini[6]. Higher values on both variables indicate more redistribution. The decision to focus on absolute redistribution in this thesis comes from the observation that relative redistribution also depends on the initial level of inequality in a country. Given the same reduction in inequality, a country having a higher initial inequality will exhibit a higher relative redistribution score. To avoid a distortion of the total reduction in inequality achieved through the political process, absolute redistribution is used in the main analysis, but relative redistribution is used to check for robustness (see Annex III). These two redistribution measures are the appropriate concepts to evaluate redistribution in the context of the M-R model, although they ignore second order effects[7]. An aspect that might be responsible for a lack of inconclusive evidence in previous studies is the usage of an inadequate definition of redistribution due to the problem that market inequality data has been rarely available. Researchers thus heavily relied on proxies such as social spending or marginal tax rates which do not quite cover the concept of an absolute change in inequality due to redistribution, as defined in the context of the M-R model.

Data and Variables

The impact of inequality and the contextual factors on redistribution discussed above, is to be tested empirically. For this purpose, the appropriate variables need to be defined and gathered first. The Standardized World Income Inequality Database (SWIID) by Solt is consulted for data on the Gini coefficients of market and disposable income inequality, as well as the absolute and relative redistribution measures. The SWIID uses several data sources and employs a missing-data multiple imputations algorithm to provide a dataset on the standard baseline of the

[6] The following equations are used to compute absolute and relative redistribution respectively:

$$Absolute\ Redistribution_{i,t} = Gini\ Market_{i,t} - Disposable\ Gini_{i,t}$$

$$Relative\ Redistribution_{i,t} = \frac{Gini\ Market_{i,t} - Disposable\ Gini_{i,t}}{Gini\ Market_{i,t}}$$

[7] Secord order effects are the effects redistributive measures, such as taxes and transfers, have on the distribution of market income itself. Taxes and transfers may for example change individual decisions on education, employment or investments which in turn affect aggregate market income.

Luxembourg Income Study (see Solt 2016 for details). It provides comparable Gini indices of market and disposable income for 174 countries and over the widest possible range of years, starting in 1960. It thus partially overcomes the problem on data availability and comparability faced by previous studies on the matter, especially regarding market Gini. Single measures of the market as well as disposable Gini and absolute and relative redistribution, as well as their respective standard errors, are provided. For summary statistics of variables refer to the table in Appendix I.

Table 1 gives an overview of the variables used in the analysis and refers to their source[8]. Measures of GDP per capita introduce an estimation of the economic situation. The income share held by the top 10 percent is used as a proxy of the de facto power lying in the hand of the top income class and accounts for the degree of lobbying possibly coming from the top income group. The human capital index is based on the average years of schooling and an assumed rate of return to education and should thus cover the concept of the economic value of human capital. A shortcoming of this measure is that it does not account for actual cognitive ability and, as all aggregate measures, conceals the underlying distribution. To account for the ability of citizens to express their preferences in the political context, measures of the regulation and competitiveness of participation are included. They both describe the extent to which the political environment and institutions allow for political influence of certain groups in society. From the Polity IV score a dichotomous measure of democracy is constructed, using the authors' classification of a country as a democracy when it reaches a score of 6 or higher. Indices of political rights and civil liberties are thought to express the degree to which citizens can act within a free and fair political environment and express their preferences through various channels[9]. Furthermore, a measure of political corruption is thought to proxy how far

[8] The variables mapping the contextual factors are merged using ISO3C country codes, which are assigned to the SWIID data in a first step.

[9] As the format, available on the Freedom House website, is very inconvenient to use in STATA, a long-format published by Amanda B. Edgell is used (https://acrowinghen.com/data/).

the transmission of preferences through the political process is distorted[10]. The focus of this analysis is set on the country level relationship and individual level factors are thus left aside. Although these are highly relevant to explain the relationship between inequality and redistribution, their analysis should be viewed as complementary[11].

Table 1: Description of the Variables used in the Analysis

Variable	Description	Source
Absolute Redistribution	0 to 100, Gini points, higher values indicate more redistribution	Standardized World Income Inequality Database
Relative Redistribution	0 to 100, percentage points, higher values indicate more inequality	
Market Gini	0 to 100, higher values indicate more inequality	
Disposable Gini	0 to 100, higher values indicate more inequality	
GDP per capita	In constant 2010 USD	World Bank
Top 10	Income share of top 10%	
Rule of Law	-2.5 to 2.5, higher values indicate better rule of law	
Human Capital	Higher values indicate higher aggregate human capital	Penn World Tables
Political Rights	1 to 7, higher values indicate more freedom	Freedom House
Civil Liberties	1 to 7, higher values indicate more freedom	
Democracy	-10 to 10, higher values indicate more democratic	Polity IV
Regulation of Participation	0 to 5, higher values indicate more regulation	
Competitiveness of Participation	1 to5, higher values indicate more competitiveness	
Political Corruption	0 to 1, higher values indicate more corruption	Varieties of Democracy

Final Dataset and Methodology

The final dataset comprises data on redistribution for 64 mostly advanced and emerging economies over the period from 1960 to 2016, including 57 democracies. Values are not available for all country years so the sample is unbalanced which is not a problem to the cross-

[10] Data is taken from the Quality of Government dataset published by the University of Gothenburg.
[11] See Alesina and Giuliano (2009) for a discussion on the factors that determine individual preferences for redistribution.

sectional analysis. Large differences in the average redistribution can be seen across countries: while Costa Rica has an absolute redistribution of -1.3 Gini points on average, indicating that disposable income inequality is even increased after taxes and transfers, Hungary reduces the Gini by 27 points on average. A similar picture emerges for the variety in Gini coefficients of market income, where Namibia displays the highest Gini on average across years with 66, and Ukraine the lowest with around 27.

To assess how far the aforementioned factors affect the relationship between market income inequality and redistribution, a fixed effects regression is conducted. The simplest representation of the model is the following, where ε_{it} is the idiosyncratic error term which does not correlate with the regressor and is i.i.d., while α_i captures the individual characteristics. The fixed effects model implies autocorrelation of the error term u_{it} as the individual characteristics are correlated over time within a country.

$$y_{it} = \beta_0 + \beta_1 x_{it} + u_{it}, \qquad with\, u_{it} = \alpha_i + \varepsilon_{it} \tag{1}$$

As the focus of attention is on the contextual factors across countries, fixed effects are used to hold constant the individual characteristics of each country. Mostly time-invariant characteristics, such as fundamental views countries have over the desirability of equality and redistributive policies or historical differences, are captured by the fixed effects model. The estimated coefficients can thus not be biased by possibly omitted time-invariant variables. By demeaning the variables, the fixed effects model eliminates all between-country variability and leaves the within-country variability for analysis. As the fixed effects regression model refers to the OLS estimator under the classical assumptions regarding the error term, the non-violation of the assumptions needs to be tested. A Hausman specification test is run to formally check whether fixed effects are more appropriate given the data. Given the result of the test on a basic regression, the null hypothesis that the unique errors are not correlated with the regressors is rejected. Using fixed effects is thus appropriate in this case. The disadvantage of using fixed

effects is that variables that do not exhibit within variation, such as ethnic fractionalization, cannot be used in the analysis. Running a modified Wald-test for group-wise heteroscedasticity yields that the null hypothesis of homoscedasticity is rejected. Furthermore, a Wooldridge test for autocorrelation reveals that there is serial correlation. Hence, the cluster option is used estimate standard errors that are robust to heteroscedasticity and serial correlation.

As the interest is not only how the contextual factors affect redistribution but more precisely how the contextual factors impact the relationship between inequality and redistribution, interaction effects are introduced. Adding an interaction term allows for the analysis of different relationships between inequality and redistribution, depending on the contextual factor. It is thus possible to determine whether the relationship is different when a country is subject to a specific institutional setting or societal characteristics. Following the categorization of variables in the theoretical part, first the societal and then the institutional factors will be analysed empirically separately. The economic wellbeing (proxied by GDP per capita) is included in all model specifications as control. In the following, the results of the fixed effects regressions are elaborated in detail. Estimations are restricted to democratic countries per logic of the M-R model.

Results of the Regression Analysis

To begin with, a simple regression of redistribution on the one period lag of market Gini is performed (Model (1) in Table 2) to estimate the direct effect without controlling for other factors. It cannot be expected that redistribution occurs immediately when citizens push for it as any policy needs some time to come to fruition. Hence, a one period lag is thought to be appropriate to account for the time lag in implementation. For the interaction effects the contemporaneous inequality level is used. In a given country, an increase of one point in the market Gini is associated with an increase of 0.386 units of redistribution one period later, which is significant at the 0.1 percent level. This is equal to saying that for a one Gini point

increase in market inequality, the difference between market and disposable Gini decreases by around 0.4 points in the next period. Only assessing the impact of inequality on redistribution yields an R-square of 0.46, so almost half of the variation on redistribution is explained by the lag of inequality prevailing in a country. In Model (2), the societal contextual factors human capital (HC), share of income accruing to the top 10 percent, and a measure of political corruption are included while the results are controlled for the level of GDP. The coefficient of market Gini stays highly significant and around 0.3, indicating a positive relationship even after controlling for a more extensive set of variables. Furthermore, the share of income held by the top 10 percent seems to slightly reduce redistribution, as expected, while human capital has a strong positive impact. Both variables are significant at conventional levels.

Lastly, interaction effects between the market Gini and the three societal factors are introduced in Model (3) to (5) to examine how the impact inequality has on redistribution depends on the contextual factors. As variables are all continuous, the effects are difficult to interpret directly. It is first of all apparent, that only human capital and political corruption as well as their respective interaction with the market Gini remain highly significant when including all factors (Model (5)). Evaluating the overall effect, the level of inequality has on redistribution requires assessing the effects at different values of human capital, political corruption, and top income decile share. For this, partial derivatives with respect to inequality can be computed. Holding all else constant, an increase in inequality in a specific country would thus have a more positive effect on redistribution for higher levels of human capital, despite the large negative direct effect of human capital on redistribution. This positive dependence of the relationship between inequality and redistribution on the level of human capital supports the hypothesis that better educated societies manage to transform their preferences for redistribution better into policy outcomes. At the same time does higher human capital itself seem to be related to lower redistribution levels. Likewise, an increase in inequality leads to

less redistribution in a politically more corrupt country. This is in line with the theoretical argument that corruption distorts the transmission of redistributive preferences through the political process.

Table 2 - Societal Factors

Absolute Redistribution	(1)	(2)	(3)	(4)	(5)
Lag Gini Market	0.386***	0.318***	-0.111	-0.081	-0.012
	(0.049)	(0.068)	(0.075)	(0.074)	(0.073)
GDP		-0.000	-0.000*	-0.000*	-0.000*
		(0.000)	(0.000)	(0.000)	(0.000)
HC		1.250*	-7.604***	-7.719***	-7.713***
		(0.531)	(1.560)	(1.773)	(1.595)
Top10		-0.191***	-0.221***	-0.164	-0.229
		(0.038)	(0.036)	(0.156)	(0.119)
Pol. Corruption		1.076	2.836**	2.981**	17.142**
		(1.176)	(1.034)	(0.930)	(4.964)
Gini*HC			0.175***	0.176***	0.166***
			(0.035)	(0.037)	(0.035)
Gini*Top 10				-0.001	0.001
				(0.003)	(0.002)
Gini*Pol. Corr.					-0.287*
					(0.110)
R^2	0.46	0.38	0.53	0.53	0.56
N	1,647	604	604	604	604

* $p<0.05$; ** $p<0.01$; *** $p<0.001$
Clustered standard errors in parentheses.

The last model, including all societal factors, exhibits a within R-square of 0.56, indicating that slightly more than half of the within variation in the dependent variable is explained by the included variables. Including the societal factors reduces the number of observations from more than 1600 to 604, but more than 50 democracies remain for analysis thus still offering a wide sample to ensure generality of results.

Table 3 shows the results for including the institutional context factors. Most apparent is that the coefficient for the market Gini turns negative and is highly significant when controlling for the institutional factors and the interaction effects of regulation and competitiveness of participation in Model (7) and the interactions with political rights and civil liberties in Model (8). In contrast, only including the institutional context factors (Model (6)) and the interaction with the rule of law (Model (9)) yields a positive and statistically significant coefficient of

inequality. While the direct effect of the regulation of participation is large and negative, the interaction effect is rather small but positive. Competitiveness of participation, and the interaction with inequality, remains an insignificant factor in all specifications. Taking the partial derivative of the equation of Model (7) with respect to inequality yields that redistribution in the next period decreases by 0.29 points for a one unit increase in inequality. In addition, redistribution increases in inequality given a higher level of regulation of participation. The last finding is in line with the hypothesized interaction between inequality and the institutional context. Given a better regulation of participation, citizens should have more opportunity to voice their preferences and engage in policy formation.

In a next specification (Model (8)), the interactions of inequality with political rights and civil liberties are accounted for. As before, the coefficient of inequality is negative at 0.236 and significant at a 5 percent level of confidence. The coefficient of political rights is negative and relatively large at a 1 percent level of significance, while the interaction between political rights and inequality is small but positive and significant at a 5 percent level. The theoretically expected relationship is supported by these results. As better political rights prevail in a country, demands for redistribution can better be translated into policies. Civil liberties remain an insignificant regressor in the model. Model (9) tests the dependence of the inequality-redistribution relationship on the interaction of inequality with the rule of law. While in this case the direct effect of inequality in a country on next period's redistribution is positive, the direct effect of rule of law is large and negative. A one unit increase in the index of rule of law reduces redistribution by more than 13 Gini points. Again, the interaction effect is substantially smaller and significantly positive.

Lastly, a model including only the significant of the afore listed institutional contextual factors is employed (Model (10)). The impact of inequality on redistribution turns out to be negative,

as in some of the models before, and only the factors regulation of participation and rule of law remain significant at conventional levels.

Table 3 - Institutional Factors

Absolute Redistribution	(6)	(7)	(8)	(9)	(10)
Lag Gini Market	0.257**	-0.290***	-0.236*	0.207***	-0.151*
	(0.076)	(0.074)	(0.100)	(0.052)	(0.068)
GDP	0.000	0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Regulation of Part.	-0.178	-7.951***	-0.112	-0.058	-5.796**
	(0.140)	(1.666)	(0.123)	(0.165)	(1.808)
Competitiveness of Part.	0.231	-0.019	0.112	0.123	
	(0.224)	(1.161)	(0.179)	(0.195)	
Political Rights	-0.238	-0.197	-3.083**	-0.173	0.010
	(0.174)	(0.107)	(1.106)	(0.148)	(0.478)
Civil Liberties	0.055	0.057	-1.057	0.131	
	(0.201)	(0.161)	(1.394)	(0.171)	
Rule of Law	-1.008	-0.418	-1.003	-13.774***	-6.938**
	(0.548)	(0.358)	(0.535)	(1.692)	(2.091)
Gini*Reg. of Part.		0.167***			0.122**
		(0.035)			(0.038)
Gini*Compet. of Part.		-0.002			
		(0.025)			
Gini*Pol. Rights			0.058*		-0.003
			(0.022)		(0.009)
Gini*Civil Liberties			0.026		
			(0.028)		
Gini*Rule of Law				0.275***	0.137**
				(0.035)	(0.047)
R^2	0.29	0.56	0.39	0.51	0.59
N	882	882	882	882	882

* $p<0.05$; ** $p<0.01$; *** $p<0.001$
Clustered standard errors in parentheses.

Including different combinations of interaction effects drastically impacts not only the sign of the direct impact of inequality on redistribution, but also the significance and size of the institutional factors. While the respective institutional factors are only significant conditional on including the interaction, none is significant without any interactions (Model (6)). Including only the institutional factors yields an R-square value of only 0.29, including interactions largely improves this value up to 0.59 in Model (10). The fact that the sign of the estimated impact inequality has on redistribution depends on the inclusion of the interactions with the institutional factors, is suggestive of the non-mechanical relationship underlying. Contextual

factors seem to conceal the negative impact rising inequality has on redistribution, which in unveiled when controlling for these factors.

To check for the robustness of results, time fixed effects, in form of year-dummies, are included (see Appendix II). Although the R-square values improve slightly compared to results in Table 2 and Table 3, coefficients of the independent variables do not change in sign and only vary slightly in strength. It is thus concluded, that country specific effects only differ moderately over time and are well captured by the country fixed effects used in the main regressions. In a last step, the regressions are run controlling for the lag of the dependent variable as it can be assumed that redistribution is relatively sticky over time (see Appendix III). Non-surprisingly, results yield that the coefficient for the lag of redistribution is well above 0.9 and highly significant while the R-square is close to 1. Moreover, coefficients of the effect of market inequality on redistribution shrink in size. More interesting is the fact, that all significant coefficients for the estimated impact of inequality are negative when controlling for the previous period's redistribution. In Model (30), controlling for the previous redistribution level as well as the societal factors and their interactions, a one unit increase in inequality results in a direct decrease of redistribution of 0.163 points. Including interactions with the significant institutional factors, yields that the effect of inequality on redistribution is negative and highly significant at a magnitude of around 0.175 (Model (35)).

This indicates that the doubts on the M-R model expressed by previous findings are justified. Controlling for previous redistribution supports empirical evidence that the effect of inequality of redistribution is actually negative, contrary to the M-R model and supporting the 'redistribution paradox'. Hence, despite the theoretical arguments for a positive effect increasing inequality in a country should have on future redistribution, empirical evidence shows otherwise. Moreover, does the inclusion of the lag of redistribution show that almost all of the variation within redistribution is explained by its previous level. The aspect of time-

dependence thus complicates the evaluation of the relationship. Running the same regressions on relative redistribution as the dependent variable yields similar results, although the R-square values of the models are very low so the specifications do not seem to explain much of the variation of the relative redistribution (see Annex III).

Discussion and Final Remarks

Widening economic disparity is one of the main challenges of our time and its implications are at the core of the policy debate today. One main question is whether and how governments are able to mediate some of the inequality which stems from global market forces. A puzzle which arose concerns the fact whether countries experiencing more income inequality actually put more effort into redistributing. As traditional economic theory suggests, making use of the median voter theorem, more inequality should lead to increased redistribution. From the results of the fixed effects panel regression it can be concluded that the positive relationship is more than dubious. Rather, it can be expected that the relationship is negative under many circumstances. Furthermore, the relationship seems to depend on certain contextual political economy factors which might explain different patterns across countries. Evaluating societal factors, rising inequality seems to have a more positive effect on redistribution in countries that have a higher human capital and less political corruption. On the institutional side, results yield that an increase in inequality results in more redistribution when countries have a better regulation of participation and a better rule of law.

These results are confirmed when combining the societal and institutional factors within one regression model. Although the number of observations drops to 496 including all factors, still 52 countries with up to 16 years of observations are included. Table 4 presents the results controlling for the full set of factors. Most apparent is that when controlling for only the political economy factors, without accounting for interaction effects, a one point increase in the lag of market Gini is estimated to result in an increase in redistribution by 0.32 points. When including

all interaction effects with inequality (Model (14)), the coefficient of inequality turns negative and is highly significant at 0.165, which resembles results obtained in the previous separate analysis. Moreover, the human capital, regulation of participation, civil liberties and the rule of law remain significant interaction effects with inequality. The effect inequality has on redistribution depends on the characteristics a country has, regarding these factors.

Table 4 - Institutional Factors

Absolute Redistribution	(11)	(12)	(13)	(14)	(15)
Lag Gini Market	0.320***	-0.074	-0.042	-0.165**	-0.106
	(0.052)	(0.050)	(0.053)	(0.054)	(0.055)
GDP	-0.000***	-0.000**	-0.000***	-0.000***	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
HC	3.150***	-7.542***	1.568**	-4.915*	-5.769*
	(0.528)	(1.808)	(0.516)	(2.164)	(2.174)
Top10	-0.192***	-0.283*	-0.153***	-0.201*	-0.184***
	(0.034)	(0.130)	(0.028)	(0.092)	(0.027)
Pol. Corruption	0.800	17.512**	1.516	-1.180	
	(1.291)	(5.780)	(1.073)	(5.903)	
Regulation of Part.	-0.153*	-0.078	-2.758**	-2.943**	-3.086***
	(0.068)	(0.105)	(0.988)	(0.861)	(0.850)
Competitiveness of Part.	0.057	-0.035	-1.336	0.686	
	(0.138)	(0.167)	(0.939)	(0.936)	
Political Rights	0.079	0.064	-0.378	-1.070	
	(0.103)	(0.084)	(0.716)	(0.680)	
Civil Liberties	-0.302**	-0.115	0.014	1.386**	1.014*
	(0.107)	(0.141)	(0.421)	(0.452)	(0.450)
Rule of Law	-0.241	-0.415	-5.119***	-6.008***	-4.849***
	(0.347)	(0.278)	(1.433)	(1.636)	(1.344)
Gini*HC		0.182***		0.125**	0.136**
		(0.033)		(0.038)	(0.041)
Gini*Top 10		0.001		0.001	
		(0.002)		(0.002)	
Gini*Pol. Corr.		-0.322**		0.065	
		(0.117)		(0.119)	
Gini*Reg. of Part.			0.056**	0.061**	0.063***
			(0.021)	(0.018)	(0.018)
Gini*Compet. of Part.			0.028	-0.016	
			(0.021)	(0.020)	
Gini*Pol. Rights			0.008	0.022	
			(0.015)	(0.014)	
Gini*Civil Liberties			-0.003	-0.031**	-0.025*
			(0.009)	(0.010)	(0.010)
Gini*Rule of Law			0.105**	0.120**	0.093**
			(0.031)	(0.034)	(0.029)
R^2	0.51	0.65	0.71	0.74	0.74
N	496	496	496	496	531

* $p<0.05$; ** $p<0.01$; *** $p<0.001$
Clustered standard errors in parentheses.

The main conclusion from this is that the total effect an increase in inequality has on redistribution seems to be mediated through political economy factors and that controlling for the context unveils the negative relationship. The findings made in the separate analyses of the factors are confirmed in the joint analysis. The R-square of the full model is 0.74 indicating that the included factors explain much of the variation in redistribution.

Several problems with the analysis remain: First, it is unclear within which time frame the inequality people experience should have an impact on redistribution. Second, interdependencies between inequality and the other factors are likely to be present, which is difficult to control for. The inclusion of the previous level of redistribution discloses the main challenges when evaluation the relationship. As there is no natural starting point in the process, the interplay of the variables is difficult to uncover. The stickiness of redistribution over time is natural to any policy of this kind. Extensive modifications to redistributive policies only phase in gradually and are unusual without major political disruptions. But as previous redistribution impacts today's inequality, the endogeneity of the variables cannot be fully addressed by the model specifications.

A drawback of the diverse sample used it that variables are difficult to measure consistently across time and countries. Especially the inclusion of emerging economies introduced measurement errors, data unavailability and generally higher uncertainty in data. Hence, more carefully collected data in the future is needed to improve the analysis. As noted above, micro and macro level analysis of the relationship are needed to generate a holistic picture. Especially the underlying understanding of equality within a society should explain much of the variation and is thus to be considered more closely. Overall, the conducted macro analysis of contextual factors adds to the existing literature by expanding the investigation to the setting within which the process takes place. The Meltzer-Richard model works well theoretically, and the relationship between the level of income inequality and redistribution seems to be explained

well by the mechanism working through the median voter theorem. But as empirical results point into an opposite direction, it cannot be ruled out that the decision makers are actually less responsive to inequality levels. To investigate the relationship further, the political process should be reviewed more in-depth, e.g. focusing on the electoral process.

References

Alesina, Alberto, and Paola Giuliano. 2009. "Preferences for redistribution". NBER Working Paper No. 14825.

Borck, Rainald. 2005. "Voting, Inequality, and Redistribution". DIW Discussion Papers No. 503.

Dallinger, Ursula. 2010. "Public support for redistribution: what explains cross-national differences?". *Journal of European Social Policy*, 20(4): 333-349.

Esteban, Joan, and Debraj Ray. 2006. "Inequality, Lobbying and Resource Allocation". *The American Economic Review*, 96(1): 257-279.

Feenstra, Robert C., Inklaar, Robert, and Marcel P. Timmer. 2015. "The Next Generation of the Penn World Table". *American Economic Review*, 105(10): 3150-3182, available for download at www.ggdc.net/pwt.

Freedom House. 2016. Freedom in the World, 1973-2016.

Houle, Christian. 2017. "Inequality, ethnic diversity, and redistribution". *Journal of Economic Inequality*, 15:1-23.

Iversen, Torben, and David Soskice. 2006. "Electoral Institutions and the Politics of Coalitions: Why some Democracies Redistribute more than others". *The American Political Science Review*, 100(2): 165-181.

Kenworthy, Lane, and Leslie McCall. 2008. "Inequality, public opinion and redistribution". *Socio Economic Review*, 6:35-68.

Marshall, Monty, Gurr, Ted, and Keith Jaggers. 2017. POLITY™ IV PROJECT Political Regime Characteristics and Transitions, 1800-2016 Dataset Users' Manual. Centre for Systemic Peace, dataset version 2016 <p4v2016 and p4v2016d>.

Meltzer, Allan, and Scott Richard. 1981. "A Rational Theory of the Size of Government". *The Journal of Political Economy*, 89(5): 914-927.

Milanovic, Branko. 2000. "The median-voter hypothesis, income inequality, and income redistribution: an empirical test with the required data". *European Journal of Political Economy*, 16: 367-410.

Moene, Karl Ove, and Michael Wallerstein. 2001. "Inequality, Social Insurance, and Redistribution". *American Political Science Review*, 95(4): 859-874.

Pecoraro, Brandon. 2017. "Why don't voters 'put the Gini back in the bottle'? Inequality and economic preferences for redistribution". *European Economic Review*, 93: 152-172.

Sánchez, Angélica, and Thomas Goda. 2017. "Corruption and the 'Paradox of Redistribution'". Social

Indicators Research, doi: https://doi.org/10.1007/s11205-017-1781-3.

Solt, Frederick. 2016. "The Standardized World Income Inequality Database." *Social Science Quarterly*, 97(5):1267-1281. SWIID Version 6.1, October 2017.

Tavares, José and Romain Wacziarg. 2001. "How Democracy affects growth". *European Economic Review*, 45: 1341-1378.

Teorell, Jan, Dahlberg, Stefan, Holmberg, Sören, Rothstein, Bo, Khomenko, Anna, and Richard Svensson. 2017. The Quality of Government Standard Dataset, version Jan17. University of Gothenburg: The Quality of Government Institute, http://www.qog.pol.gu.se doi:10.18157/QoGStdJan17.

World Bank Open Data. https://data.worldbank.org, data retrieved on 17.11.2017.

Appendix

I. Summary Statistics

		Mean	Std. Dev.	Min	Max	Observations	
Absolute Redistribution	overall	10.50278	7.69368	-1.8	31.6	N	2014
	between		7.65809	-1.3	27.1	n	64
	within		1.32607	4.0	15.9	T-bar	31.46880
Gini_mkt	overall	45.32427	6.75716	21.2	68.5	N	4874
	between		6.28712	26.7	65.9	n	179
	within		2.44593	34.8	55.6	T-bar	27.22910
GDP	overall	11943.29000	16616.55000	182.7	111968.4	N	4634
	between		14962.97000	238.0	85470.9	n	173
	within		4966.40900	-25658.2	44501.7	T-bar	26.78610
Open	overall	75.34261	49.86886	0.2	441.6	N	4515
	between		44.78135	19.0	348.5	n	171
	within		17.67027	-27.3	210.1	T-bar	26.40350
HC	overall	2.31819	0.70131	1.0	3.7	N	4250
	between		0.65563	1.1	3.5	n	139
	within		0.25535	1.4	3.5	T-bar	30.57550
Top10	overall	31.16566	7.61835	17.1	61.5	N	1264
	between		6.70726	21.0	53.3	n	156
	within		2.58947	16.4	48.7	T-bar	8.10256
PolCorr.	overall	0.46513	0.28287	0.0	0.9	N	4383
	between		0.26888	0.0	0.9	n	157
	within		0.07754	-0.1	0.8	T-bar	27.91720
Par_Reg	overall	3.50484	1.22404	1.0	5.0	N	4239
	between		1.02815	1.0	5.0	n	147
	within		0.60799	0.7	5.7	T-bar	28.83670
Par_Comp	overall	1.62912	12.36715	-88.0	5.0	N	4279
	between		11.94707	-77.0	5.0	n	149
	within		10.21705	-89.2	41.1	T-bar	28.71810
Pol_Rights	overall	4.80698	2.04608	1.0	7.0	N	4440
	between		1.93314	1.0	7.0	n	172
	within		0.94184	-0.2	9.0	T-bar	25.81400
Civil_lib	overall	4.75135	1.74207	1.0	7.0	N	4440
	between		1.66091	1.0	7.0	n	172
	within		0.73982	0.3	7.4	T-bar	25.81400
RoL2	overall	0.02012	1.00397	-2.0	2.1	N	2362
	between		0.98700	-1.9	2.0	n	175
	within		0.16273	-0.8	0.9	T-bar	13.49710

II. Including time fixed effects

Table 5 - Societal Factors including time fixed effects (year dummies not displayed)

Absolute Redistribution	(16)	(17)	(18)	(19)	(20)
Lag Gini Market	0.292***	0.302***	-0.139*	-0.079	-0.004
	(0.054)	(0.060)	(0.067)	(0.061)	(0.061)
GDP		-0.000	-0.000**	-0.000**	-0.000**
		(0.000)	(0.000)	(0.000)	(0.000)
HC		1.256	-9.444***	-9.899***	-9.937***
		(1.124)	(1.876)	(2.167)	(1.927)
Top10		-0.162***	-0.188***	-0.060	-0.123
		(0.035)	(0.033)	(0.143)	(0.107)
Pol. Corruption		0.984	2.602**	2.916**	17.729***
		(0.902)	(0.849)	(0.864)	(4.728)
Gini*HC			0.177***	0.179***	0.170***
			(0.033)	(0.036)	(0.034)
Gini*Top 10				-0.002	-0.001
				(0.003)	(0.002)
Gini*Pol. Corr.					-0.300**
					(0.100)
R^2	0.56	0.49	0.61	0.61	0.64
N	1,647	604	604	604	604

* $p<0.05$; ** $p<0.01$; *** $p<0.001$

Clustered standard errors in parentheses.

Table 6 - Institutional Factors including time fixed effects (year dummies not displayed)

Absolute Redistribution	(21)	(22)	(23)	(24)	(25)
Lag Gini Market	0.281***	-0.265***	-0.184	0.227***	-0.151*
	(0.062)	(0.059)	(0.093)	(0.053)	(0.061)
GDP	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Regulation of Part.	-0.141	-6.436***	-0.084	-0.057	-5.296**
	(0.129)	(1.568)	(0.109)	(0.146)	(1.565)
Competitiveness of Part.	0.104	-1.093	0.004	0.075	
	(0.183)	(0.984)	(0.140)	(0.168)	
Political Rights	0.024	-0.043	-2.697*	-0.051	-0.350
	(0.139)	(0.087)	(1.047)	(0.135)	(0.503)
Civil Liberties	-0.217	-0.103	-1.229	-0.014	
	(0.209)	(0.166)	(1.303)	(0.164)	
Rule of Law	-0.839	-0.420	-0.852	-11.863***	-5.695*
	(0.465)	(0.351)	(0.443)	(1.995)	(2.372)
Gini*Reg. of Part.		0.135***			0.111**
		(0.033)			(0.033)
Gini*Compet. of Part.		0.021			
		(0.022)			
Gini*Pol. Rights			0.055**		0.005
			(0.020)		(0.010)
Gini*Civil Liberties			0.024		
			(0.026)		
Gini*Rule of Law				0.236***	0.111*
				(0.044)	(0.053)
R^2	0.40	0.59	0.48	0.53	0.61
N	882	882	882	882	882

* $p<0.05$; ** $p<0.01$; *** $p<0.001$

Clustered standard errors in parentheses.

III. Controlling for lagged Dependent Variable

Table 7 - Societal Factors including Lag DV

Absolute Redistribution	(26)	(27)	(28)	(29)	(30)
Lag Abs. Redistribution	0.986***	0.922***	0.851***	0.857***	0.857***
	(0.014)	(0.039)	(0.042)	(0.038)	(0.042)
Lag Gini Market	-0.014	0.016	-0.114*	-0.164**	-0.163*
	(0.007)	(0.014)	(0.045)	(0.060)	(0.061)
GDP		-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)
HC		0.038	-3.023**	-2.850**	-2.851**
		(0.127)	(0.884)	(0.825)	(0.834)
Top10		-0.028**	-0.051***	-0.138**	-0.139**
		(0.008)	(0.009)	(0.047)	(0.045)
Pol. Corruption		-0.096	0.607	0.357	0.428
		(0.289)	(0.516)	(0.483)	(1.913)
Gini*HC			0.062**	0.061***	0.061***
			(0.018)	(0.017)	(0.017)
Gini*Top 10				0.002	0.002*
				(0.001)	(0.001)
Gini*Pol. Corr.					-0.001
					(0.034)
R^2	0.96	0.88	0.89	0.90	0.90
N	1,619	600	600	600	600

* p<0.05; ** p<0.01; *** p<0.001

Clustered standard errors in parentheses.

Table 8 - Institutional Factors including Lag DV

Absolute Redistribution	(31)	(32)	(33)	(34)	(35)
Lag Abs. Redistribution	0.944***	0.880***	0.911***	0.909***	0.879***
	(0.018)	(0.024)	(0.019)	(0.026)	(0.023)
Lag Gini Market	-0.010	-0.195***	-0.182***	-0.006	-0.175***
	(0.006)	(0.050)	(0.043)	(0.008)	(0.045)
GDP	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Regulation of Part.	0.011	-0.596	0.030	0.018	-1.049**
	(0.018)	(0.452)	(0.022)	(0.017)	(0.390)
Competitiveness of Part.	-0.025	-1.820*	-0.062	-0.029	
	(0.031)	(0.686)	(0.050)	(0.030)	
Political Rights	0.022	0.018	-0.866*	0.020	-0.893**
	(0.025)	(0.039)	(0.343)	(0.028)	(0.324)
Civil Liberties	-0.011	0.006	-0.589*	0.000	
	(0.036)	(0.045)	(0.281)	(0.035)	
Rule of Law	-0.044	-0.051	-0.074	-1.598**	-0.014
	(0.079)	(0.076)	(0.081)	(0.522)	(0.454)
Gini*Reg. of Part.		0.013			0.022**
		(0.010)			(0.008)
Gini*Compet. of Part.		0.038*			
		(0.015)			
Gini*Pol. Rights			0.018*		0.018**
			(0.007)		(0.007)
Gini*Civil Liberties			0.013*		
			(0.006)		
Gini*Rule of Law				0.033**	-0.001
				(0.011)	(0.010)
R^2	0.94	0.95	0.95	0.94	0.95
N	882	882	882	882	882

* p<0.05; ** p<0.01; *** p<0.001

Clustered standard errors in parentheses.

Annex

I. Proposed Schedule

04.09.2017	Exposé outlining general idea of thesis sent to J.T. - Research question - Problem arising and value added - Literature overview
30.09.2017	Data and Methodology - Deep dive methodology to be used (*) - Data and variables - Context specification (*)
	Approval of Literature Review
	Approval of Methodology and Data
15.10.2017	First Data Analysis (*) - First data analysis to discuss flaws and preliminary outcomes
05.11.2017	Start writing: Motivation, Literature and Methodology
19.11.2017	Start writing: Data and Analysis including results
30.11.2017	Start writing: Discussion of results and conclusion
04.12.2017	Upload to Plagiarism Check and send to J.T.

(*) needs to be discussed with J. Tavares

II. Description of Data Sources and Variables

Source	Variable Description	Variable Name
Standardized World Income Inequality Database	Disposable Gini	Gini_disp
	Market Gini	Gini_mkt
	Absolute Redistribution	Abs_Red
	Relative Redistribution	Rel_Red
	Disposable Gini st. error	gini_disp_se
	Market Gini st. error	gini_mkt_se
	Absolute Redistribution st. error	absred_se
	Relative Redistribution st. error	relred_se
World Bank	GDP per capita growth, annual % change	GDP_g
	GDP in constant 2010 USD	GDP
	Trade as % of GDP	Open
	Income Share top 10%	Top10
	Income share bottom 10%	Bottom10
	Rule of Law, -2.5 to 2.5 with higher values reflecting better outcomes	RoL2
Penn World Tables	Investment share	Invest
	Human capital index	HC
Freedom House	Inverse Political Rights, 1 least free 7 most free	Pol_Rights
	Inverse Civil Liberties, 1 least free 7 most free	Civil_lib
Polity IV	Edited Polity IV index	Democracy
	Regulation of Participation, 0 unregulated 5 regulated	Par_Reg
	Competitiveness of Participation, 1 repressed 5 competitive	Par_Comp
Quality of Government	Democracy, 1 = Democracy	Democ
	Rule of Law, 0 worst 16 best	RoL
	Electoral System Type, 1 Maj 2 Prop 3 Mixed	ElectSys
	Corruption perceptions index	CorrPerc
	Political Corruption	PolCorr
	Ethnic Fractionalization	EthFra
	Ethnolinguistic fractionalization	EthnFra
	Voting turnout	ElectPart

III. Regressions using the Relative Redistribution measure

Table 8 - Societal Factors

Relative Redistribution					
Lag Gini Market	0.209**	0.245**	-0.174	-0.302*	-0.209
	(0.075)	(0.077)	(0.132)	(0.131)	(0.136)
GDP		-0.000**	-0.000**	-0.000**	-0.000**
		(0.000)	(0.000)	(0.000)	(0.000)
HC		2.029*	-6.634*	-6.143*	-6.135*
		(0.771)	(2.876)	(2.940)	(2.662)
Top10		-0.287***	-0.316***	-0.562*	-0.651**
		(0.053)	(0.054)	(0.259)	(0.218)
Pol. Corruption		2.088	3.810*	3.185*	22.376*
		(1.523)	(1.575)	(1.405)	(9.166)
Gini*HC			0.171**	0.167**	0.154**
			(0.053)	(0.051)	(0.049)
Gini*Top 10				0.005	0.007
				(0.005)	(0.004)
Gini*Pol. Corr.					-0.389*
					(0.188)
R^2	0.08	0.28	0.35	0.36	0.38
N	1,647	604	604	604	604

* $p<0.05$; ** $p<0.01$; *** $p<0.001$

Clustered standard errors in parentheses.

Table 9 - Institutional Factors

Relative Redistribution					
Lag Gini Market	0.135	-0.582***	-0.454***	0.081	-0.396**
	(0.091)	(0.158)	(0.123)	(0.068)	(0.138)
GDP	0.000	-0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Regulation of Part.	-0.265	-7.828**	-0.196	-0.136	-6.497**
	(0.206)	(2.483)	(0.178)	(0.237)	(2.339)
Competitiveness of Part.	0.109	-2.182	-0.019	-0.008	
	(0.375)	(2.706)	(0.289)	(0.378)	
Political Rights	-0.423	-0.370	-5.127*	-0.352	-0.820
	(0.283)	(0.214)	(2.330)	(0.270)	(1.112)
Civil Liberties	0.177	0.194	0.190	0.260	
	(0.352)	(0.298)	(2.410)	(0.322)	
Rule of Law	-1.106	-0.515	-1.116	-14.909***	-6.754
	(0.816)	(0.665)	(0.774)	(3.028)	(3.520)
Gini*Reg. of Part.		0.162**			0.134**
		(0.052)			(0.049)
Gini*Compet. of Part.		0.042			
		(0.056)			
Gini*Pol. Rights			0.096*		0.011
			(0.046)		(0.021)
Gini*Civil Liberties			0.003		
			(0.049)		
Gini*Rule of Law				0.297***	0.130
				(0.064)	(0.078)
R^2	0.08	0.26	0.15	0.21	0.27
N	882	882	882	882	882

* $p<0.05$; ** $p<0.01$; *** $p<0.001$
Clustered standard errors in parentheses.

IV. Regression with random effects

Table 10 - Societal Factors random effects

Absolute Redistribution					
Lag Gini Market	0.385***	0.369***	-0.046	-0.121	-0.091
	(0.049)	(0.067)	(0.079)	(0.075)	(0.082)
GDP		0.000	0.000	0.000	0.000
		(0.000)	(0.000)	(0.000)	(0.000)
HC		0.455	-7.761***	-7.517***	-7.524***
		(0.446)	(1.481)	(1.545)	(1.510)
Top10		-0.259***	-0.274***	-0.410**	-0.435***
		(0.042)	(0.039)	(0.131)	(0.111)
Pol. Corruption		-2.405	-0.288	-0.508	5.494
		(1.238)	(1.122)	(1.042)	(4.611)
Gini*HC			0.164***	0.163***	0.159***
			(0.035)	(0.034)	(0.034)
Gini*Top 10				0.003	0.003
				(0.003)	(0.002)
Gini*Pol. Corr.					-0.122
					(0.107)
N	1,647	604	604	604	604

* $p<0.05$; ** $p<0.01$; *** $p<0.001$

Robust standard errors in parentheses.

Table 11 - Institutional Factors random effects

Absolute Redistribution				
Lag Gini Market	-0.291***	-0.236*	0.207***	-0.162*
	(0.068)	(0.101)	(0.054)	(0.063)
GDP	0.000	0.000*	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Regulation of Part.	-7.853***	-0.032	0.008	-5.990***
	(1.624)	(0.118)	(0.149)	(1.791)
Competitiveness of Part.	-0.096	0.050	0.071	
	(1.107)	(0.185)	(0.187)	
Political Rights	-0.187	-2.985**	-0.165	0.043
	(0.114)	(1.073)	(0.151)	(0.485)
Civil Liberties	0.051	-1.129	0.118	
	(0.159)	(1.341)	(0.174)	
Rule of Law	-0.022	-0.494	-12.737***	-5.769**
	(0.370)	(0.533)	(1.710)	(2.086)
Gini*Reg. of Part.	0.166***			0.127***
	(0.035)			(0.038)
Gini*Compet. of Part.	-0.001			
	(0.024)			
Gini*Pol. Rights		0.056**		-0.004
		(0.021)		(0.010)
Gini*Civil Liberties		0.027		
		(0.027)		
Gini*Rule of Law			0.263***	0.120*
			(0.035)	(0.047)
N	882	882	882	882

* $p<0.05$; ** $p<0.01$; *** $p<0.001$
Robust standard errors in parentheses.